

~~Mobile telecommunication device~~

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In conventional systems for wireless telecommunication, mobile subscriber stations usually communicate via stationary facilities of the infrastructure. In contrast with this, satellite systems are now planned or being set up in which the infrastructure, that is to say the base stations, are implemented by satellites. ^{For} ~~which~~, for various reasons, ~~are not~~ ^{such satellites} geostationary but orbit the earth at a relatively low altitude and, in doing so, continuously change their location in relation to the earth's surface.

In the course of their movement around the globe, these mobile telecommunication devices will fly successively over the territories of different countries in which different regulations for utilizing frequencies or transmission protocols apply. The

present ~~transmission~~ ^{direct} ~~processes~~ apply.
^{specifying} ~~object on which the invention is based is, therefore to~~
~~specify the technical teaching by means of which the~~
~~conformance to~~ ^{such telecommunications} ~~different regulations, relating to~~
25 ~~telecommunication which vary locally and possibly with~~
~~time, is made possible. This object is achieved by the~~
~~subject matters of the present claims. It is thereby~~
~~ensured~~ ^{as} ~~using a facility for transmitting messages to~~
~~a multiplicity of subscriber stations via~~ ^{either} ~~a number of~~
30 ~~radio frequencies or by means of different transmission~~
~~methods and a facility for evaluating at least one~~
~~control~~ ^{as} ~~signal depending on the position of the~~
~~telecommunication device for selecting or changing the~~
~~radio frequencies or transmission methods used by the~~
35 ~~telecommunication device,~~ ^{wherein} ~~that~~ ~~the~~ ~~respective~~
~~applicable regulations are observed.~~

present

The [^]invention thus provides for a very extensive, time-optimized adaptation of the mobile infrastructure facilities to

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a multiplicity of national radio transmission regulations which permits better utilization of transmission resources than the use of transmission resources which have been released globally.

- 5 Naturally, satellites are not the only conceivable mobile telecommunication facilities ^{contemplated by} ~~in the sense of~~ the present invention. Naturally, mobile devices on ocean-going ships or as payload of airships and similar mobile telecommunication devices ^{could be used} ~~in the sense of~~ the present invention ~~can be used~~.

A preferred embodiment of the present invention provides for the use of a number of radio facilities or controllers and the use of ~~means for~~ connecting or disconnecting these radio facilities or controllers ^{depending on} ~~in dependence on~~ a control signal or ~~on~~ a number of control signals. This advantageous embodiment of the present invention thus takes into account, in a particularly simple and robust manner, the fact that a satellite-supported telecommunication system is frequently in simultaneous contact with the territories of a number of countries ^{wherein} ~~in that~~ suitable radio facilities can be provided for different countries.

A further preferred embodiment of the present invention provides that the device is equipped with ^{device which determines} ~~means for~~ determining the position of the device and ^{device that generates} ~~means for~~ generating a control signal ^{depending} ~~in dependence~~ on the current position. This has the advantage that no special terrestrial infrastructure needs to be created for implementing the ^{present} ~~invention~~.

^{as} In the text which follows, the invention will be described with the aid of ~~preferred~~ embodiments and ~~with the aid of figures, in which:~~

Figure 1 shows a diagrammatic representation of the interaction of a device ^{of} ~~according to~~ the ^{present} ~~invention~~ with a terrestrial

infrastructure for controlling the telecommunication device^{and};

Figure 2 diagrammatically shows a preferred embodiment of the telecommunication device^{of} ~~according to~~ the^{present} invention using a number of radio facilities.

Figure 1 illustrates how a mobile telecommunication device 11 (satellite) can be caused to select or change the radio frequencies or transmission methods by a control signal 14 when flying over a boundary region between two locally limited mobile radio infrastructures 12, 13. The control signal can be sent out directly by terrestrial 15 (radio beacon) or other stationary devices (for example, geostationary satellites, etc.) or it can be generated by a device for position finding 16 in the telecommunication device itself. Thus, if the telecommunication device 11 is within transmission range of a radio beacon 15, a response^{such as}, ~~e.g.~~ a change of frequency or operating mode, is automatically initiated in the telecommunication device.

In this manner, the mobile telecommunication device can optimally adapt to local or time-defined regulations regarding the use of frequencies or ~~the utilization of~~ transmission methods. It is possible, for example, to locally influence satellite links; e.g., the use of a satellite could be blocked for certain user groups in trouble spots.

~~As such, the~~ The device^{of} ~~according to~~ the^{present} invention ~~thus~~ typically contains a controllable radio device, or a number of such radio devices, which can be switched on and off by a programmable controller. The information

regarding when this is to be done is derived from a control signal. This signal originates from an external device or is derived in the mobile telecommunication device from position data which can come, ^{for example} ~~eg.~~ from a global positioning system (GPS).

It is advantageous if a number of radio parts 17, 18, or a radio part which can be switched to a number of frequencies (& differentiated, if necessary, depending on uplink or downlink [^] or operating modes, is integrated into the telecommunication device. In this arrangement, the information table or algorithms, which establish the relationship between current position and the corresponding operating mode of the radio parts, are also changed by a central control station and are, thus, adapted to changing regulations.

Accordingly, a storage device for such tables (data records) and a processor 19 for processing and adapting ^{this} ~~these~~ stored data ^{would} ~~must~~ be provided in such a mobile telecommunication device.

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